ROSEBURG DISTRICT

SUPPLEMENTAL

ENVIRONMENTAL ASSESSMENT RECORD

FOR PROPOSED

OIL AND GAS LEASING

EAR-OR-100-7-029

ROSEBURG DISTRICT
OREGON

APRIL 1977

U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

SUPPLEMENTAL

ENVIRONMENTAL ASSESSMENT RECORD

I. Description of Proposed Action

A. Introduction

This Environmental Assessment Record (EAR) concerns the possible impact of proposed oil and gas lease operations on national resource lands administered by the BLM in the Roseburg District.

This Environmental Assessment supplements the EAR written in 1976 which covered 39 lease applications and 66,953 acres. Since that time, 13 additional noncompetitive oil and gas lease applications have been filed with the BLM covering 13,467.84 acres which are in the Roseburg BLM District. This supplemental assessment is being written to cover the lands involved in the additional oil and gas lease applications. (See maps on following pages.)

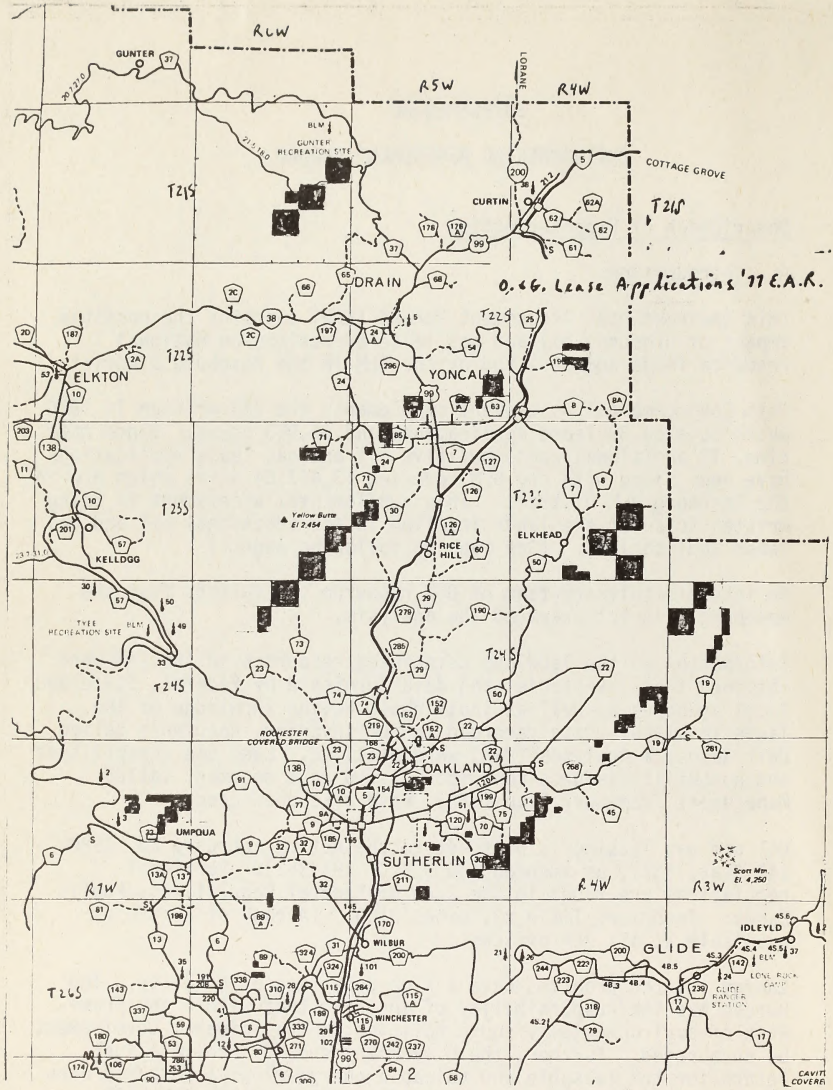
An interdisciplinary team of BLM resource specialists from the Roseburg District prepared the analysis.

Information on the land and associated resources in the EAR were obtained from inventories and data furnished by Federal, State and local agencies as well as individuals having knowledge of the lands involved. Data recorded in BLM inventory documents called Unit Resource Analyses (URA) were utilized. Land use capabilities and potential resource conflicts listed in a document called Management Framework Plan (MFP), have also been used.

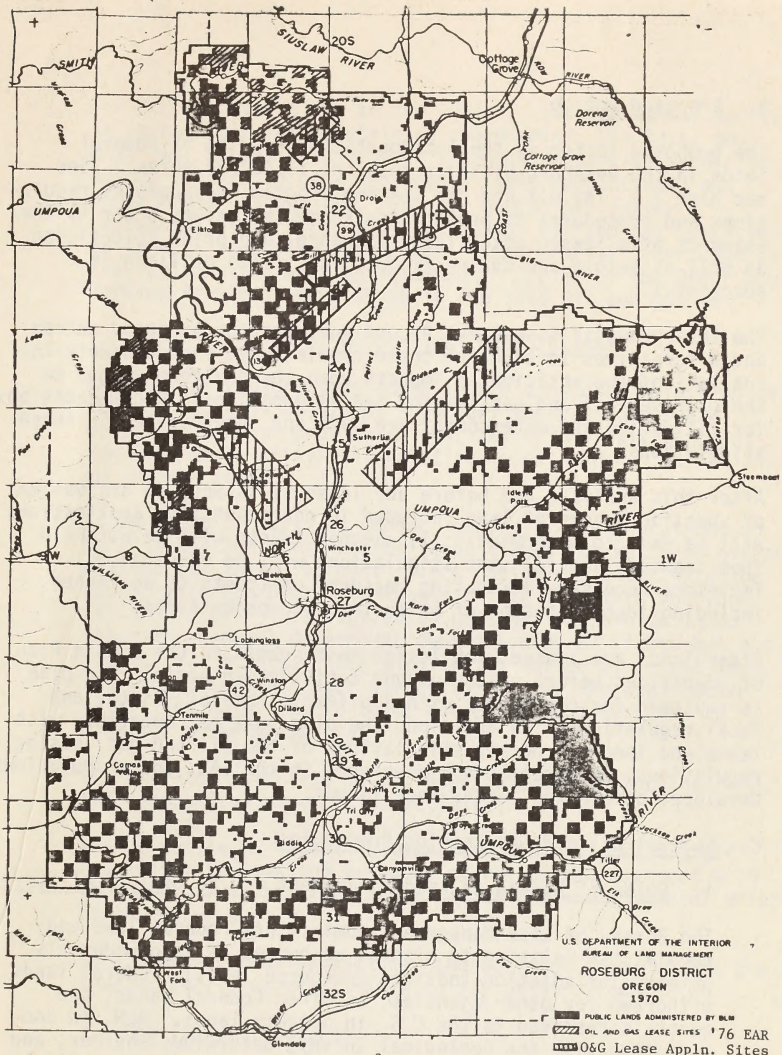
Oil and gas leasing is pursuant to the Act of February 25, 1920, (41 Stat. 437), as amended (30 U.S.C. 181-263). Pertinent regulations are found in the Code of Federal Regulations, Public Lands: Interior, Title 43, Group 3100. (A copy of 43 CFR is available at all BLM offices.)

Energy related programs have a high departmental priority. The Bureau has the responsibility of insuring that within the framework of environmentally sound policies, energy-mineral development be encouraged. Further, the Government should receive a just return for the leasable and saleable energy-mineral resource when it permits development and production. (Reference; BLM 1603 Manual Supplement.)

The lands applied for oil and gas leasing are not in a known geologic structure (KGS), and therefore are considered as non-competitive lease applications.



O.&G. Lease Applications '77 E.A.R.


U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ROSEBURG DISTRICT
OREGON
1970
PUBLIC LANDS ADMINISTERED BY BLM
OIL AND GAS LEASE SITES '76 EAR
O&G Lease Appln. Sites '77 EAR
Roseburg
Winchester
Dillard
Tenmile
Comos
Elkton
Drain
Sutherlin
Idleyld Park
Steamboat
Tiller
Glendale
Lookingglass
Winston
Myrtle Creek
Canyonville
Cottage Grove
Dorena Reservoir
Cottage Grove Reservoir
SMITH RIVER
SIUSLAW RIVER
UMPQUA RIVER
NORTH UMPQUA RIVER
SOUTH UMPQUA RIVER
WILLIAMS RIVER
20S
32S
1W
2W

3

B. Proposed Action

The proposed action is the noncompetitive leasing of Federal lands in the Roseburg District totaling 13,467.80 acres. (See map page 3.) The oil and gas leasing program incorporates regulations and procedures to protect environmental values prior to the issuance of a lease, after lease issuance, and prior to drilling as well as before and during production, if the drilling is successful.

The Environmental Assessment Record analyzes the proposed action and alternatives in light of these regulations, and documents the analysis of the anticipated impacts upon the environment due to the proposed oil and gas leasing and alternatives. Recommendations for mitigation and enhancement are made and incorporated in lease stipulations.

After this analysis and before any lease is issued, an evaluation of specific tracts of land included in noncompetitive applications will be made to determine: (1) whether tracts will be withheld from leasing; and (2) what stipulations will be required to implement necessary mitigating measures on tracts to be leased, including identification of no surface occupancy areas.

After lands are leased, the lessee must submit to the USGS a Plan of Operations before on-the-ground activity can begin. The plan is reviewed for compliance with applicable Federal, State, and local regulations. In addition, the plan must be compatible with lease and land use permit stipulations of the oil and gas leasing regulations, recommendations developed in the EAR, and stipulations developed before the leases were issued.

C. Federal Oil and Gas Leasing Procedures

1. Roles of Bureau of Land Management & U.S. Geological Survey

The Bureau of Land Management administers Federal laws and regulations relating to mineral resources on land under its primary jurisdiction (national resource lands), Federal lands withdrawn for other agencies, acquired Federal lands, and minerals reserved to the U.S. in private lands. BLM, in consultation with the Geological Survey, determines whether, and the conditions under which Federal oil and gas leases will be issued. If the lands being considered for leasing are withdrawn for another Federal agency, that agency is involved in the process of determining whether the land will be leased. All Federal lands within the EAR boundaries are national resource lands.

After leases are issued on lands administered by BLM, the Geological Survey, after consultation with BLM, administers

oil and gas operations on the leases. The Geological Survey is responsible for maintaining engineering, geologic, geophysical, economic, and other technical expertise needed to assure compliance with applicable laws, regulations, and Departmental objectives. BLM and Geological Survey responsibilities for administration of oil and gas operations on Federal leases are described in Secretarial Order 2948 and the implementing working agreement. Copies of the Order and Working Agreement were shown in the 1976 Oil and Gas EAR.

2. Administration of Geophysical Explorations

Geophysical explorations normally are conducted before an oil and gas lease is obtained. However, the procedures are described here to provide an overview of the full range of administrative activities relating to oil and gas operations on Federal lands.

If an operator wants to conduct geophysical explorations on "off lease" BLM administered lands (lands for which he has no oil and gas lease) he must file a notice of intent with the appropriate BLM District Manager before he enters the land (43 CFR 3045). This regulation does not pertain to lands where the Federal Government owns the mineral rights but not the surface rights. When signing the notice of intent form, the geophysical operator agrees to conduct the exploration activities according to terms and conditions designed to minimize adverse impacts.

The operator must also file a bond before entering the land, for geophysical exploration activity.

When a notice of intent is received, a BLM District Staff Specialist reviews the proposed operation and may meet with the operator in an effort to minimize the environmental effects of the surveys.

Upon completion of operations, the operator must restore the area as nearly as practicable to its original condition.

3. Pre-lease Procedures

Land Use Planning. Land use capabilities and potential resource conflicts are considered in a document called a Management Framework Plan (MFP). The MFP indicates how land uses in a planning area will be coordinated and identifies constraints for future actions taken in the area. Basic resource data are recorded in inventory documents called Unit Resource Analyses (URA's).

Environmental Assessment. Before a decision is made on whether oil and gas leases will be issued in a specific area, BLM prepares an Environmental Assessment Record (EAR). The EAR describes the setting in which the action is to occur, possible environmental impacts of the proposed action, and measures to reduce adverse impacts of the proposed action.

Lease Stipulations. Information gathered in the land use planning and environmental assessment processes and other data are used by BLM to determine whether oil and gas leases will be issued for specific lands and, if so, the conditions or stipulations to which the prospective lessees will have to agree prior to the issuance of the leases. Most of the stipulations in oil and gas leases issued in recent years relate to the prevention or mitigation of unfavorable environmental impacts.

All oil and gas leases issued by BLM at the present time contain an open-ended set of stipulations. The stipulations are included on BLM Form 3109-5; a copy is included on the following page. These stipulations insure that after the lease is issued, USGS and BLM have additional opportunities to specify measures the lessee must take to protect environmental values.

Oil and gas leases also contain site-specific stipulations. These stipulations are developed individually for each lease area.

Classification Report. Before a lease is issued, a classification report is prepared by the Geological Survey to determine whether the lease will be issued on a competitive or noncompetitive basis. The Geological Survey determines whether all or any parts of the area applied for are within a Known Geologic Structure (KGS). An area is classified as being within a KGS if it is within the trap, whether structural or stratigraphic, of a producing oil and gas field as best as can be determined from the geologic data available for leasing until it is offered at a competitive lease sale. If the area is not within a KGS it may be leased on a noncompetitive basis.

No Known Geologic Structures have been identified in Oregon.

4. Lease Issuance

If a tract has not been previously leased, a lease is issued on a noncompetitive basis to the first applicant (1) if the land is legally available, (2) if USGS determines that it is not a KGS, and (3) if BLM determines through the land use planning and environmental analysis processes that oil and gas development is acceptable and appropriate.

EXHIBIT "B"

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SURFACE DISTURBANCE STIPULATIONS

Area Oil and Gas Supervisor or
District Engineer *(Address, include zip code)*

District Engineer
U. S. Geological Survey
800 Truxtun Avenue, Room 309
Bakersfield, California 93301

Management Agency *(name)*	Address *(include zip code)*
Bureau of Land Management Roseburg District Office	777 N. W. Garden Valley Boulevard Roseburg, Oregon 97470

1. Notwithstanding any provision of this lease to the contrary, any drilling, construction, or other operation on the leased lands that will disturb the surface thereof or otherwise affect the environment, hereinafter called "surface disturbing operation," conducted by lessee shall be subject, as set forth in this stipulation, to prior approval of such operation by the Area Oil and Gas Supervisor in consultation with appropriate surface management agency and to such reasonable conditions, not inconsistent with the purposes for which this lease is issued, as the Supervisor may require to protect the surface of the leased lands and the environment.

2. Prior to entry upon the land or the disturbance of the surface thereof for drilling or other purposes, lessee shall submit for approval two (2) copies of a map and explanation of the nature of the anticipated activity and surface disturbance to the District Engineer or Area Oil and Gas Supervisor, as appropriate, and will also furnish the appropriate surface management agency named above, with a copy of such map and explanation.

An environmental analysis will be made by the Geological Survey in consultation with the appropriate surface management agency for the purpose of assuring proper protection of the surface, the natural resources, the environment, existing improvements, and for assuring timely reclamation of disturbed lands.

3. Upon completion of said environmental analysis, the District Engineer or Area Oil and Gas Supervisor, as appropriate, shall notify lessee of the conditions, if any, to which the proposed surface disturbing operations will be subject.

Said conditions may relate to any of the following:

(a) Location of drilling or other exploratory or developmental operations or the manner in which they are to be conducted;

(b) Types of vehicles that may be used and areas in which they may be used; and

(c) Manner or location in which improvements such as roads, buildings, pipelines, or other improvements are to be constructed.

OR 13600

Form 3109-5 (August 1973

GPO 849-25

When leases outside KGS's expire, terminate, are relinquished or cancelled, land use plans and environmental analyses are reviewed to determine whether the tracts should be reoffered for leasing and, if so, the kind of stipulations to be added to the new lease. The tracts are reoffered by being posted on a monthly list. All applications for the posted tracts received during the filing period are considered to have been filed simultaneously. A public drawing is held, and one application is drawn for each tract.

If there are no simultaneous applications for a tract, it becomes available to the first application submitted subsequent to the drawing. Noncompetitive leases are currently issued for a primary term of 10 years.

If commercial quantities of oil or gas are found, then the lease is valid for as long as the field is productive.

Since Oregon has no KGS areas at this time, no competitive leasing is scheduled in the state.

Lessees must furnish bonds conditioned upon compliance with the lease stipulations. Bonds must be furnished before a drilling permit is issued for a noncompetitive lease.

5. Post-Lease Procedures

During the term of the lease, the Geological Survey supervises operations of the lessee in that portion of the lease tract within the "area of operations." The original 1976 Oil and Gas EAR has additional details on this item.

The Geological Survey asks BLM for recommendations on surface protection and rehabilitation measures before the Survey acts on requests from lessees for approval of plans for drilling or other surface-disturbing operations. The BLM administers the oil and gas leasing regulations and terms of the lease in that portion of the lease tract outside the area of operations.

The "open-ended" lease stipulation (Form 3109-5) requires the lessee, prior to entry upon the land, to submit for approval to the Geological Survey a map and surface use plan explaining the nature of the anticipated activity and surface disturbance. The lessee also submits this information to BLM. If the lessee proposes to conduct any activities which would disturb the environment, he will be required to obtain approval from the Survey at least once during the life of the lease. If he finds oil or gas and wishes to drill additional wells to develop the field or construct facilities needed to reach full production, he will be required to return to the Survey for

approval of plans for each new stage of development. The information the lessees must furnish in the surface use plan is listed in the Geological Survey's Notice to Lessees, Number 6 (NTL-6). A copy of NTL-6 and other Notice to Lessees are available for public inspection in most BLM offices that have had recent oil and gas leasing interest.

For all exploratory well proposals, the USGS prepares an Environmental Assessment document in consultation with BLM. If BLM so requests the Geological Survey will also hold a joint field inspection to analyze the environmental impacts of the proposed action. Stipulations are attached to the drilling permit to minimize adverse environmental impacts. The lessee may be asked to change the proposed well site if drilling in the original location would have severe environmental impacts.

If oil or gas is discovered, lessees are required to submit additional lease development plans and permit requests to the Geological Survey for approval. After USGS has reviewed the proposed plans and permit applications and consulted with and received input from BLM, the proposed plans are modified, if necessary, to insure that proper construction practices are followed. The lessee is required to prepare for contingencies such as fires, accidents, blowouts, spills, and leaks, and to notify various State and Federal agencies, such as the Environmental Protection Agency, in the event of an oil leak or spill.

The Geological Survey is responsible for final approval of abandonment operations when oil and gas operations are terminated. The Survey will not approve the abandonment unless reclamation is carried out to the satisfaction of BLM. When abandonment or cessation of operations results in expiration, cancellation, or relinquishment of the lease, the Geological Survey requests BLM to inspect the leasehold area for compliance with the surface protection and reclamation stipulations in the lease and drilling permit. The lessee is required to reclaim the area insofar as practicable to its condition prior to the oil and gas operations.

D. Regulation of Oil and Gas Operations by the State of Oregon

Oregon is an associate member of the Interstate Oil Compact Commission and has adopted many of the policies and model rules suggested by this group of State regulatory agencies. State rules require bonding, blowout prevention equipment, controlled disposal of brines, and the cementing and casing of wells. State law also sets well spacing limits and provides for the protection of correlative rights of landowners. In 1961 the Legislature passed a

utilization law which defines the conditions for forming field-wide operating units, provides for settlements between working interests and allows compulsory unitization when 75 percent of the royalty ownership favors unit operations.

State regulatory authority is vested in the Department of Geology and Mineral Industries which issues drilling permits, approves casing programs, inspects blowout prevention equipment, witnesses abandonment plugging, and collects well records. In the event of a discovery, the Department's rules require uniform development and regular reporting of storage and production. Stipulations added to the drilling permit at the request of the State Department of Environmental Quality require compliance with State air and water quality laws.

Before drilling permits are issued, the applications are reviewed by the Department of Environmental Quality, Water Resource Department, Fish and Wildlife Commission, and the Department of Land Conservation and Development.

E. Summary of Oil and Gas Leasing and Exploration in Western Oregon

Oil and gas drilling activity in Western Oregon has fluctuated widely over the years since the first wildcat well was drilled near Newberg in 1902. The drilling has produced numerous shows of oil and gas but no commercial discoveries. Most of the more than 100 wells drilled up to 1975 in Western Oregon were less than 2,000 feet deep. More than 20 wells drilled since 1940 were over 4,000 feet deep. The deepest was drilled in 1955 in the Siuslaw National Forest in Lane County; it was drilled to a depth of 12,880 feet.

Almost all oil and gas drilling in Western Oregon has taken place on private land.

Ten exploratory wells have been drilled on Federal lands in Oregon. The only well drilled on Federal land in Western Oregon was the deep hole in the Siuslaw National Forest.

Drilling activities accelerated on private land, but not on Federal land, in Western Oregon in 1975.

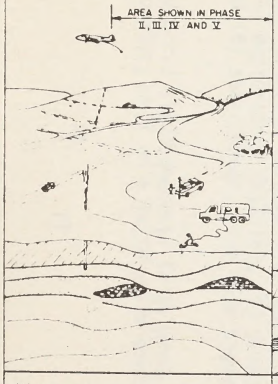
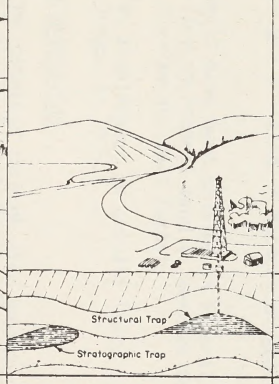
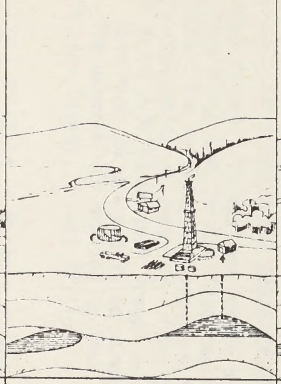
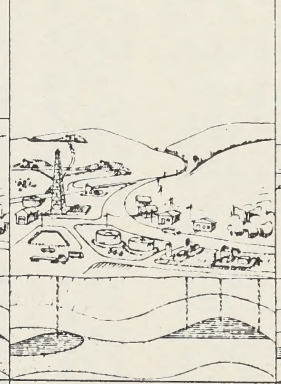
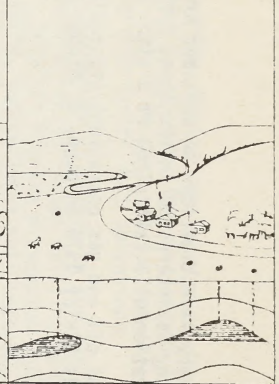
F. Stages of Implementation

Petroleum operations progress through five phases: (1) preliminary investigations; (2) exploratory drilling; (3) development; (4) production and (5) abandonment. The five phases are illustrated on page 12.

Several phases may occur simultaneously in an area. One company may drill an exploratory well on a lease while another company

conducts preliminary investigations on adjacent areas. However, if only one company is interested in the area, normally only one phase of the operation will take place at a time.

The five phases of oil and gas operations are explained in detail in the Oil and Gas EAR of 1976 on pages 8 through 18 and are not repeated here.

PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V
PRELIMINARY INVESTIGATON (Unknown Geologic Structure) Preliminary investigations are carried out over large areas from aircraft and on the ground.	**EXPLORATON** If the preliminary investigations indicate that geologic structures may contain oil and gas, a lease is obtained and an exploratory well is drilled.	**DEVELOPMENT** If oil and gas are discovered during the exploration phase and recovery is economically feasible, the field is developed for production.	**PRODUCTION** The production phase involves operation and maintenance of the field and recovery of oil and gas.	**ABANDONMENT** When the field is abandoned, equipment is removed, wells are plugged, and the surface is reclaimed.
				
Airborne surveys Surface surveys Geochemical surveys Stratigraphic & Other Mapping Geophysical surveys Explosive method Thumper method Vibrator method Gravity & other methods Geologic surveys	Wildcat well drilling Access roads Camp and buildings (remote areas)	Development drilling Access roads Pipelines Utility lines Seperators Storage tanks Camp and buildings	Continued drilling and development of field Pressure maintenance system Disposal of waste Secondary and tertiary recovery system Communication and production systems Communities	Equipment, buildings and facilities removal Field cleanup Well abandonment and plugging Eliminate Hazard Surface reclamation Landscaping Reseeding Other erosion control

SEQUENCE OF OPERATIONS IN AN OIL AND GAS FIELD

II. Description of the Existing Environment

A. Geology and Topography

The lease area lies within the Coast Range Geomorphic Province and contains the Umpqua Formation, Tyee Formation, and intrusive rocks. The Umpqua Formation occurs in the Camas Valley area. It produces rounded and gentle topography. The Tyee Formation is found in the Hubbard Creek area north to Smith River. It produces sharp steep topography. The intrusive rocks are found in the Elkhead area. They produce broad rounded ridgetops and steep sideslopes. The topographic relief of the proposed lease area is characterized by highly dissected terrain with steep slopes and dendritic drainage patterns. Elevations vary from a low of 150 to 2,900 feet above sea level.

The following information is a description of each formation:

1. Umpqua Formation

The Umpqua Formation can be divided into two members: (1) basalt flows and (2) shaly siltstone, with occasional beds of sandstone. Both members are thought to have been deposited in a marine environment. Generally the basalt shows a "pillow" structure which resulted when the molten rock cooled rapidly. There are three areas with such rock types. The basalt produces broad rounded hills and broad stream bottoms. The three areas are located at Mt. Baldy, Parker Creek, and Red Hill.

The siltstone member is a fine-grained, well-bedded sedimentary rock that is light gray when fresh and weathers to an olive brown. It contains thin beds of sandstone, shale, and conglomerate. Siltstone occurs as narrow bands around the basalt near Drain. However, southeast of Drain it becomes much more widespread. Most all of the low lying hills such as Rice Hill, Turkey Hill, and Marvin Hill are composed of siltstone. Yellow Creek Mountain marks one part of the boundary between the Tyee Formation and the Umpqua Formation.

Tyee sandstone is more resistant to erosion and is often found as a capping on softer siltstones such as we find east of Yellow Creek Mountain. Further south to Camas Valley, pockets of conglomerate occur within large areas of siltstone.

The siltstone member is easily eroded. Most of the hills are low and rounded. Where sandstone becomes more common, such as Camas Mountain, the landscape becomes steeper with long narrow ridges and steeper sideslopes.

2. Tyee Formation

The Tyee Formation is a series of thick sandstone beds and thin siltstone layers. Unweathered sandstone is bluish gray but weathers to a light brown. Tyee Formation was named after Tyee Mountain. It is believed to have been deposited in a marine and estuarine environment. There is evidence that indicates the Tyee sandstones, siltstone and associated sedimentary rocks are as much as 10,000 feet thick in places.

The Tyee Formation has a gentle southwest dip. This has resulted in steep northeast slopes and gentler southwest slopes with narrow ridgetops. Thistleburn, Middle and Bell Ridges are examples. South of Buck Mountain the dip is mostly due west, hence most of the relatively gentle slopes have a west aspect. Yellow Creek Mountain and Renhaven Ridge serve to illustrate this point.

At the top of the Tyee Formation is a siltstone. This siltstone is found north and south of Elkton around Old Blue Mountain and on the north side of Yellow Butte.

In areas where the Tyee Formation is deeply weathered, large slumps have occurred in the distant past. Very large slumps in the order of 10 to 15 acres in size make up many of the slopes in Little Wolf Creek, Miner Creek and Hubbard Creek.

In the extreme northwest part of the District, in Smith River, the topography is characterized by very steep sideslopes and very narrow ridgetops and stream channels. The closer to the coast one goes there is more down cutting taking place. This has resulted in deeply dissected canyons. This has been labled Type I Tyee (Burroughs, et. al., 1973).

On the east side of the Tyee Formation, sideslopes are gentler with large blocks of deep soils still on the hillside. Ridges are broader and relief is less. This type of landscape is called Type II Tyee.

3. Intrusive Rocks

Dikes and sills are present in the Elkhead area. They are drab colored gabbros, basalts, and diorites. The intrusive rocks occur on Ben More Mountain and around Elkhead.

The rocks produce broad gently rolling ridgetops with deep red soils. Around the broad ridgetops are very steep sideslopes with red gravelly soils.

The geology of interest to the petroleum engineer and petroleum companies is that illustrated on the map indicating favorable

drilling prospects and wells with hydrocarbon shows, a copy of which is made part of this EAR and is on the following page.

The lease applications in the Roseburg Bureau of Land Management District are in the area that is the south half of the east portion of the Coast Range anticline and apparently the shoreline of the Western Tertiary Sea. Tertiary time began about 63 million years ago and ended about 13 million years ago.

B. Soils

The soils found in the EAR area are devleoping from Tyee sandstone, Umpqua sandstone, siltstone, and intrusive rocks. They range from deep alluvial soils next to stream bottoms to very shallow stoney loam soils on very steep slopes.

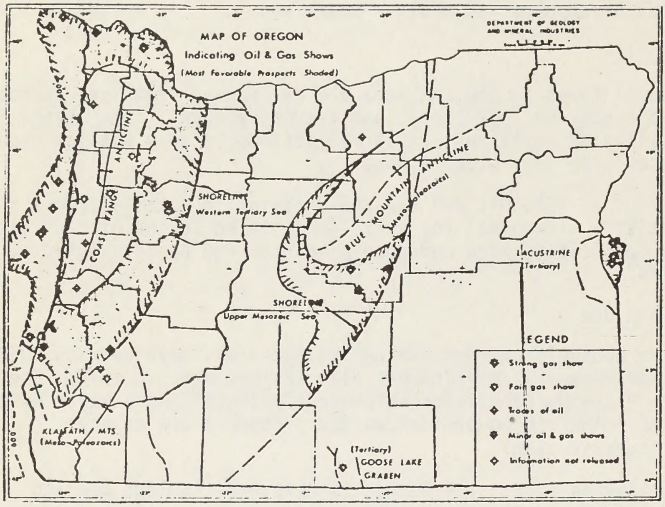
The original 1976 Oil and Gas EAR explains in detail (from a soil scientist's viewpoint) the soils encountered in the oil and gas lease application area and should be reviewed by interested parties.

C. Land Use

Douglas County's current zoning ordinance was developed in 1960. An interim general development plan was prepared in 1972. The County Planning Commission is presently organizing a major effort to update the zoning ordinances and prepare a new county comprehensive plan.

Topography is a decisive factor in this area in land use and transportation networks. Population centers, agricultural and grazing use are confined largely to the flatter ground on the valley bottoms, while timber production is an extensive use occurring over most of the area and is the major acitivty on the steeper, higher slopes. The use of land for timber production greatly exceeds all other uses, with the economy largely dependent on timber-related employment, associated industry and services. Sheep and cattle grazing is secondary, followed by agricultural use consisting mainly of hay and fruit crop production. Because of the topography, there are numerous small valleys where the latter two uses are common on small individually owned tracts. Although some grazing occurs within the forested area (public and private), it is largely restricted to the valley areas.

Three small to medium population centers (Roseburg, Sutherlin, Oakland) exist along Interstate 5, a major north-south valley route which divides the largest agricultural-grazing area in half. In addition, other small communities (Camas Valley, Winston, Dillard, Tenmile, Lookingglass, Melrose, Umpqua, Elkton, Drain, Yoncalla, Curtin, Anlauf) are located on secondary arterial routes. Roseburg, Dillard, Sutherlin, Drain, and Yoncalla have primary forest products industries.



Map indicating favorable drilling prospects and wells with hydrocarbon shows.

Map used by Vernon C. Newton, Jr., Petroleum Engineer, Oregon Department of Geology and Mineral Industries in his article "Oil and Gas Exploration in 1973" in The Ore Bin January 1974, Vol. 36 No. 1.

National resource lands (NRL) included within the area of the proposed action are administered by the BLM. BLM currently has Management Framework Plans (MFP) for these lands. These are multiple-use plans prepared to reconcile land and resource use conflicts, and to apply direction, objectives, and constraints for each resource and program activity within a specific geographic area. Land use conflicts rarely occur, and have not been a problem in the subject proposed lease area. The degree and type of land use conflict that may develop between the applicant and the BLM can only be conjecture at this time and will require resolution on a case by case basis.

The NRL shows the checkerboard pattern of ownership typical of early grant lands. This alternating character of intermingled public and private lands results in a varied pattern of use intensity and transportation routes. Generally heavily forested, these lands are managed for continuous timber production. Although varying with specific location, most of the adjacent private forest lands are owned by timber companies. The landscape consists of various forest types intermingled with cut-over, burned, and cleared land typical of the Northwest coniferous forest region. These areas are lightly settled.

Rock pits and quarries exist at several locations. Rock mined is usually crushed for road surfacing.

There is a great diversity of past and present surface management uses on the proposed lease lands. Some parcels are uncut timberlands, some within a mile of major highways. A number of parcels lie against improved private agricultural lands, some are well-roaded, some with no access or few roads. The majority of BLM parcels have had some logging.

In parcels that do have extensively developed all-weather or seasonal use roads, they have been constructed almost entirely by BLM or the timber industry. They represent a considerable investment to facilitate forest management on the intermingled lands. Some portions have high maintenance costs and may be subject to stability problems at certain periods of the year.

A de facto type of public use exists on most of the roads, but this is not a legal type of access and presents continuing problems in residential development of intermingled private lands. There are commercial use restrictions on most of the subject impacted roads, and public use restrictions could be imposed.

The right to use roads by the oil and gas lease applicants could vary considerably from parcel to parcel. This will require future cooperation between the lessees and landowners, and will have to be dealt with almost on a case by case basis.

Reciprocal road use agreements between BLM and the timber industry deal with commercial log hauling, and different types of easements are acquired across private lands. BLM inventory estimates of land covered by roads approximates 10,000 acres in the District.

An open space character dominates a very large proportion of all the land areas. This factor, and the intermingled land patterns of Federal and private lands, provides a dispersed type of recreational opportunity.

The Umpqua River meanders through portions of the area. Sport fishing is a major attraction. Douglas County maintains approximately ten parks or waysides along the river between Roseburg and Elkton. BLM recreation sites for camping and picnicking are located at Tyee on the Umpqua, and Gunter on Smith River. Six other county parks are located on secondary roads, two of these are associated with reservoir impoundments east of Sutherlin. Three additional county parks and two state highway rest areas serve freeway travelers between Roseburg and Curtin. Camas Mountain State Park is situated between Tenmile and Camas Valley.

One oil and gas lease application, OR 17145, is near the town of Umpqua, Oregon approximately one-half mile from the Umpqua River in Secs. 13, 14, 15, and 23, T. 25 S., R. 7 W., W.M.

D. Air and Climate

1. Particulate Matter

Suspended particulates are monitored in Roseburg. The particulate concentration mean annual average in Roseburg is 45 micrograms/cubic meter. This is slightly lower than Oregon's ambient air quality standard (60 micrograms/cubic meter of air, as an annual mean).

Particulate contributions to the air are primarily from:

a. Roseburg and outlying communities within the EAR area.
b. Timber harvesting activities.
c. Local industries (timber related and others).
d. Agriculture.
e. Nature.

Industry contributes soil dust, smoke, and wood dust to the air throughout the year. Smoke and wood dust originate at the lumber mills, while the primary sources of soil dust are unsurfaced roads, rock crushing operations and other industrial activities.

Air pollution from the community is mostly from smoke during the winter. This is produced by home heating units which burn wood or oil. The community also contributes to this pollution via vehicle exhaust.

Particulate concentration varies throughout the year. Seasonal variations in weather contribute to this variation. Summer temperatures decrease soil moisture and allow an increase in dust particulates from unsurfaced roads. Winter air inversions further increase particulate and pollutant concentrations.

Valley bottoms usually have the highest concentrations, while higher slopes and ridges have the least amount of particulates. Local levels of particulate are increased during summer weather when timber harvesting activities are in progress.

2. Noxious Gases

The primary source of noxious gases in the EAR area is vehicle exhaust (carbon monoxide, hydrocarbons, and nitrogen oxides).

The areas of the highest concentrations are next to I-5 and Roseburg. Outlying communities have descending concentrations, usually decreasing with a decrease in the vehicle population.

Some gases are produced by the burning of sawmill wastes at various mills located in the EAR area. The gases dispersed by this burning are carbon monoxide and hydrocarbons.

3. Air Movement Patterns

Prevailing northerly winds exist from February through October with southerly winds persisting during November through January. Hourly wind speeds average mostly 4 to 6 m.p.h. while 3 m.p.h. or less occur from 29 percent of the time in July to 80 percent in November. The highest one minute average wind of 50 m.p.h. occurred in October 1962.

Thunderstorms usually come from the southwest. They occur in the spring and summer and are the source of the strongest summer winds. The winter storms come from the west and have strong southerly winds.

Valleys are susceptible to air temperature inversions throughout the year. These are usually more frequent in the summer, but winter inversions are usually stronger and last longer. The major effect of these inversions is to increase the concentration of particulates and pollutants in the air.

4. Temperature

The Umpqua Valley area with its second mildest climate in the state provides only a 27 degree difference between the mean temperature of January and July. The 24-hour temperature range averages 14 degrees in January up to a 31 degree range

in August. Periods of extreme temperatures generally result from the influx of continental air that is pushed east of the Cascade Mountains. Annual temperature extremes show that only one year out of five will be cooler than 14 degrees or warmer than 103 degrees. The 219 day growing season at Roseburg is based on the average date of last 32 degree or lower temperature in the spring and that of the first occurrence in fall.

5. Precipitation

The definite winter rainfall climate of Douglas County furnishes 30 to 35 inches of moisture annually in the Umpqua Valley area, 50 to 70 inches on the Cascade Mountains and 70 to 100 inches along the Coast Range. The EAR area receives 47 percent of its annual moisture in winter, 21 percent in spring, 5 percent in summer, and 27 percent in the fall. Measurable precipitation of 0.01 inch or more occurs on 131 days per year.

Measurable snowfall occurs in five out of six winters. Most valley and lower elevation snow cover remains only a few days, while snow cover at higher elevations may remain for an extended period of time.

E. Non-Ionizing Radiation

This radiation is primarily emitted from microwave, television and radio transmitters, telephone and electric transmission lines. These radiation sources are located near towns or on top of ridges.

Output from radio and television transmitters in the area operate between 1 and 6000 watts. Two main electric transmission lines exist in the EAR area. One, known as the Fry-Dixonville line, is a 230 kv overhead distribution line and is located in the northeast sector. The other is a 7.2 kv line and is located in the southwest sector.

F. Water

The lease area is located in the North Pacific Hydrologic Region. Water originates as precipitation most of which falls in the form of rain. Most of the precipitation occurs between October and May.

The lands applied for by the oil and gas lease applicants are drained by the Umpqua River. The main tributaries are the Smith River, Elk Creek, North and South Umpqua Rivers.

One reservoir is located in the area of lease applications on Bear Creek, a small tributary to Billy and Elk Creeks.

The Bear Creek and Adams Creek watersheds are important because they form domestic water supplies for the cities of Drain and Yoncalla.

Peak flow periods follow the rainfall pattern occurring during December and January.

The quality of the surface water is generally good; the streams are dilute and soft.

Stream flow during the summer period is greatly reduced because of the lack of summer rainfall and consumption of water for irrigation.

G. Aquatic Plants

With the exception of seasonal swamps and ponds the aquatic environment within the analysis area is a running (lotic) or stream type as opposed to a standing type. Thus, current, cooler water, lower nutrient content, and less available sunlight limit aquatic vegetation to willows, fillamentous algae and periphyton. However, the totality of the vegetative component of the aquatic environment is comprised of more than just submersed vegetation--terrestrial plants are a crucial link. The typical fauna of the lotic system are "debris" feeders, highly dependent upon organic materials which drop into the stream from adjacent vegetation.

H. Terrestrial Plants

The EAR area is an array of coastal coniferous forest dominating the northern sector, transcending to a mixed conifer composition in the south. The appearance of grasslands and oak woodlands are encountered in the lower foothills in the eastern sector. However, they become increasingly prevalent in the southern sector, where they commonly appear in conjunction with the mixed conifer type.

For a detailed discussion of terrestrial plants, see Section H, pages 36-39 of the 1976 Roseburg District Oil and Gas EAR.

I. Wildlife

By the BLM's definition, wildlife includes all known wildlife species of mammal, birds, fish, amphibians, reptiles, and invertebrates. A review of the checklist for Oregon shows that we would expect to find 73 species of mammals, 198 species of birds, 32 species of fish, 31 species of reptiles and amphibians, and an unknown number of invertebrates in the proposed lease areas.

No animal classed as endangered nationally by the Fish and Wildlife Service is known to inhabit the lease areas.

The State of Oregon lists the Northern Spotted Owl and Northern Bald Eagle as threatened in the State of Oregon.

A more detailed discussion on terrestrial and aquatic wildlife is available in the 1976 Roseburg Oil and Gas EAR, Section I, pages 40-49.

J. Domestic Livestock

Livestock use on NRL lands within the lease area is mostly associated with private land in the valley areas. Plant succession following harvest of the timber allows forage species to grow for periods of 8 to 15 years before being crowded out by competing brush and tree canopies.

Much of the area has steep slopes which are not conducive for good livestock forage areas. Lack of summer rainfall in the area also limits the forage production to the spring and fall.

Within the proposed lease area there are a total of 15 grazing leases involving 21,737 acres, and providing 1,705 A.U.M.'s for 921 head of domestic stock.

K. Human Values

1. Landscape Character

Cox Creek-Elkhead-Calapooya Creek Area. This area is mainly farm land in broad valleys (such as Scotts Valley) with BLM timberland on the surrounding ridges. Considerable old-growth is present, interspersed with cut-over land and young timber. Scenery is classed as "C." Use by recreationists over most of the area is low. The exceptions being the developed recreation sites at the man-made lakes, Cooper Creek and Plat I, in the Calapooya Creek Valley. Public access to Adams Creek and Cox Creek is restricted, so they are classed as "seldom-seen" zones. At a few points along Interstate 5 between Sutherlin and Curtin, brief, long-range views of BLM land within the lease area are possible. The distance and viewing time is such that the visual impact is low. Most of the BLM ownership in this area is at a considerable distance from any habitation. Sensitivity is rated as low in these areas. There are some areas however, where visual sensitivity would be rated as medium or even high. The medium sensitivity areas are visible from Douglas County Road 18 in Secs. 3 and 17 of T. 25 S., R. 4 W. (as shown on Map 6). Those portions of Secs. 23 and 27 of T. 25 S., R. 5 W., that are visible from the Cooper Creek Reservoir or the surrounding developed recreation area would have a high sensitivity rating.

In the Drain Resource Area all new lease applications except two are located within scenery (VRM) categories with low sensitivity and seldom-seen by general travelers, with "B" class scenery.

Two exceptions are:

a. Lease #17132 - Eastern portion in Sec. 13, T. 21 S., R. 6 W., W.M.
b. Lease #17137 - Western portion in Sec. 33, T. 22 S., R. 5 W., W.M.

Both of these are classified as medium sensitivity because of nearness to travelled routes, foreground scenery of class "B" quality.

In addition, portions of lease application #17145 which occur on Tyee Mountain, north of Umpqua, although classed as $\frac{\text{L-SS}}{\text{C}}$, are situated near the Umpqua River Scenic Corridor (MFP). The higher portions on south slopes are generally visible as low to medium sensitivity, middleground class "B" to "C" scenery. This finer classification is added to the original EAR by means of attached map.

Lease applications in areas near population centers such as Sutherlin should be considered as a visually more sensitive area. Road construction and drill site leasing would be the strongest operational impacts if such activity occurs.

2. Man-Made Features

In the North Umpqua Resource Area, east of Sutherlin, two man-made reservoirs exist in the oil and gas lease application area. The reservoirs, Cooper Creek and Plat I, are used for irrigation and recreation.

In the Drain Resource Area an 18 acre outplanting site for progeny tests of seedlings under the co-op tree improvement program is located on a portion of lease application #17133 in the NE¼NE¼, Sec. 3, T. 24 S., R. 6 W. This is a high-fenced special study area. Any disturbance, including preliminary investigations would impair the controlled environment aspect for proper seedling growth and testing under the program.

L. Socio-cultural Interests

Historical

The first non-Indian visitors to the interior Umpqua drainage were fur traders who generally journeyed south from the

Columbia River via the Willamette Valley and either Elk Creek or Calapooya Creek to the Umpqua River. The first adventurer on record was Alexander Ross of the Northwest Fur Company in 1818 who stayed very briefly.1/ In 1826, Alexander McLeod led an expedition for Hudson Bay Company and was accompanied by English botanist, David Douglas.2/ Later they were followed by J. B. Gagnier and William Rae who established Fort Umpqua for the Hudson Bay Company, in 1836 near the present townsite of Elkton. Fort Umpqua represented the first white settlement in southern Oregon; introduced the first agriculture and domestic animals; and constituted the first continuous contact with the Indians.3/

In 1846, a group of settlers explored a southern emigrant route for future settling of southern Oregon. In the spring of 1848 Levi Scott moved from the Willamette Valley and settled in Scott's Valley on Elk Creek. At the same time his two sons, William and John, settled in Yoncalla Valley as did the Cowan's. In 1849, four other settlers entered the Yoncalla area, including Jesse Applegate. Earlier in 1847, Warren Gooddel settled at the location of Drain. The first settlers were spilling down from the already populated Willamette Valley to the northern portion of Douglas County. By 1850 pack trains were common heading between the northern California gold fields and the Willamette Valley. The newly formed company of Winchester, Payne & Company in San Francisco sought to establish townsites in northern Douglas County for purposes of transacting business along this well-travelled route and succeeded in founding the town of Winchester only after the quick collapse of the company.4/

The year of 1851 saw the rapid settlement of the entire Douglas County region by people from the Willamette Valley and from the east. From the first year of its official existence (1852) until 1880, when Douglas County saw a period of settlement and the opening up of agricultural land, the growth was slow. Farm land was the main attraction that brought the first settlers to Douglas County, but even in those days many were part-time farmers because the woods and streams easily furnished a good share of the family food needs. The county in 1880 had a population of 9,596. For the next ten years, however, settlement was more rapid because of the building of new roads and the coming of the railroad.

The first settlers in the Umpqua Valley region used the historic Applegate Trail which was established in 1846. This trail closely approximated the present-day Interstate 5. Settlement was further enhanced by the 66 mile long Coos Bay Wagon Road, which was completed about a year ahead of the railroad in 1871. The Coos Bay Wagon Road (CBWR) was established by an Act of Congress, dated March 3, 1869,

1/,2/,3/,4/ See Reference, page 30.

granting lands to the State of Oregon to aid the construction of a military wagon road from the navigable waters of Coos Bay to Roseburg. This route is a well established county road today and is used mainly for log hauling to mills in the Roseburg vicinity on the eastern end, and in the Myrtle Point-Coquille-Coos Bay area on the western end. It is also used by recreationists and some that choose to take a scenic and historic route to the coast.

"Opening up" of the Umpqua Valley by the CBWR and the railroad stimulated the area's development and increased its growth. As a result, agriculture became the predominant land use activity. Agriculture remained the leading industry in Douglas County until 1940, when logging surpassed it.5,6/

M. Social Welfare

1. Economic Characteristics of the Study Area

The area included in the analysis contains the bulk of Douglas County's 1975 population of 80,400 people and of the County's economic activity. (Approximately 39,000 people reside in the metropolitan Roseburg area. The remaining population is dispersed throughout the County.) Population growth in the County has been steady at about 7.1 percent during the last 14-year period. The overall population density is 15.8 persons per square mile.

Employment in the County is shown on the following table:

Douglas County Employment--1976

Manufacturing	Employed	Percentage
Durable Goods		
Lumber and Wood	9230	31.5
Primary Metals	470	1.6
Other Durable Goods	460	1.6
Nondurable Goods		
Food Products	140	0.5
Other Nondurables	540	1.8
Non-Manufacturing		
Contract Construction	1270	4.3
Transportation and Utilities	1370	4.7
Trade		
Wholesale	460	1.6
Retail	4570	15.6
Finance, Insurance, Real Estate	800	2.7
Service and Miscellaneous	4010	13.7
Government	5990	20.4

5/,6/ See Reference, page 30.

Employment is highest in the manufacturing section. Manufacturing can thus be considered a major economic activity in the County. The largest group of firms are involved in wood products processing. The labor force in the study area fluctuates seasonally. This fluctuation results from the area's dependence upon the timber industry. Employment normally peaks in the summer and drops to a low in mid-winter.

The number one basic industry in Douglas County is lumber and forest products. Mineral production rates as second with respect to income. However, total employment in this sector is approximately one-quarter agriculture. Agriculture consists of: (1) livestock production; (2) crops of fruits and nuts; (3) vegetables, horticultural specialties, and hay crops.

Income from agriculture is predominated by the sale of livestock and livestock products. This is evidenced by the fact that Douglas County leads the state in sheep and wool production. The County also has a thriving tourist trade which is highly seasonal.

All forms of services can be found in the County. Most of these are concentrated in the Roseburg area and include several financial institutions, four radio stations, one television station, one daily newspaper, five weekly newspapers, several utility companies, over 100 churches, 5 hospitals, and several schools. Roseburg serves as an important transportation center. The city is served by Southern Pacific, Greyhound lines, Continental Trailways and several freight companies. Roseburg has a municipal airport which provides private charter planes and air parcel service. There is no commercial passenger service available.

Available economic information for the study area suggests that the lumber, mineral, and agricultural industries are the region's major exporters. The products of the area are sold outside the region and receipts are returned to the area residents. Tourism also provides an additional inflow of money into the region.

2. Local Regulatory Structure

Douglas County is governed by a three member Board of County Commissioners. The County has a Planning Commission. The County's current zoning ordinance was developed in 1960. An interim general development plan was prepared in 1972. The County is presently organizing to update the ordinances and prepare a new comprehensive plan. At present, agricultural and forestry use lands are zoned AGT (Agriculture, Grazing, Timber-Raising District). (See Reference, page 30.)

N. Archaeological Values

Very little is known of the Indian populations of Douglas County during the brief historic period of aboriginal occupancy. Removal of the last remaining natives to reservations established elsewhere in Oregon occurred in the mid-1850's. Even less is known of the prehistory of the region. The time depth of the utilization of the upper Umpqua River territory is assumed to be roughly equivalent to that known for southcentral Oregon[1/] which is somewhat in excess of 10,000 years. Who the groups were and what their relationship through time may have been, no one knows.

Territorial boundaries are only roughly known for the historic period. The interior portion of Douglas County during the 1750-1850 period was inhabited by the Yoncalla, Umpqua, Mollala, Takelma and Upper Coquille peoples.[2/] The former two groups inhabited the EAR area. The Yoncalla spoke a distinctive dialect of the Calapuyan language, the language primarily spoken by inhabitants of the Upper Willamette Valley to the north. They apparently occupied the Elk Creek and Calapooya Creek tributaries of the Umpqua River.[3/] The Umpqua were Athapascan speakers, possibly the most widespread occupants of Douglas County east of Elkton, locating their main settlements on the major Umpqua River courses. Athapascan-speaking groups were scattered along various drainages in southwestern Oregon and northwestern California and are thought to have entered the southern Northwest Coast region from central Canada perhaps 1000 years ago. However, no precise estimates are available.

Prior to 1976, only one aboriginal site in the interior region of Douglas County was on the Oregon Archaeological Survey files. Though many sites have been discovered since mid-1976 and are now being processed into the state files, none are located on national resource lands within the boundaries of the analysis area. The distribution of known sites near the specific analysis areas tends to be limited to floodplains and benches along major water courses. This is a reflection of the lack of systematic survey strategies in the past for the less accessible areas. Much of the national resource land in Douglas County is mountainous and heavily forested. Archaeological resources are not easily discovered under these conditions, a factor contributing to the lack of substantiated archaeological values in the area. The potential for discovery of sites on national resource lands with the EAR area is high.

The most prevalent site types discovered to date in the upper Umpqua drainage area are housepit "villages," large open lithic scatters and smaller, less dense open lithic scatters. Inferences concerning seasonal-round subsistence gathering, architecture, social organization and factors that influenced site locationing can at present only be made from studies of other groups inhabiting

1/,2/,3/ See Reference, page 31.

similar environmental regions in southwestern Oregon and northwestern California.4,5,6,7/. The main foods utilized in quantity were probably anadromous fish, large land game, freshwater mussel, acorns, camas bulbs, mushrooms, various berry species, hazel nuts and grass seeds. If a map of resource distribution in the fall months were constructed (Sept.-Nov.) it would reveal an area of overlap of several readily available major resources in the lowland oak-savanna dominated valleys. Not only would residence in this area provide the most efficient procurement of these resources, but also offers the greatest shelter from rains, snowfall and high winds. The extent of this area corresponds to the presently known distribution of housepit villages. As in other Northwest Coast areas and on the Plateau, the pithouse villages were possibly used continuously as multiple activity locations during fall, winter and spring months and as base camps for activities conducted elsewhere during the remainder of the year. These locations also served as repositories for preserved food collected in the fall, such as camas and acorns in September and October, and the fall anadromous fish runs peaking in mid-November. A great abundance of land game, including elk and white-tailed deer, constituted a steady resource through the winter months. The fall availability of an abundance of resources provided the potential for cooperative exploitation and provision of social interaction. Given the prospect of a lean winter season and the capabilities of storing food, a group might choose to strive for maximum utilization of an abundant resource to provide for a later season. The spring anadromous fish runs and first appearance of root crops and greens would adequately replenish the depleted winter supplies.

Sites in the forested mountainous perimeter may be representing various limited activity locations. Seasonal camps utilized annually may be represented by large lithic scatters often found associated with isolated stream benches of perennial water courses and springs on prominent ridgetops. Summer economic activities would include hunting, berry collecting and fishing. Possible short-term extraction camps may be represented by sites with low density lithic scatters found on small stream benches along non-fish bearing streams or on higher benches along ridgetops.

These people probably lived in small bands composed of largely economic independent individual households linked through kin relationships. Political organization within these bands was not strongly developed and leadership was vested on the basis of individual qualifications. Seasonal variation of internal social arrangements was probably not large.

O. Attitudes and Expectations

The discussion in the 1976 Oil and Gas EAR is pertinent and applicable as written.

4/,5/,6/,7/ See Reference, page 31.

P. Ecological Interrelationships

The write-up in the 1976 Oil and Gas EAR is pertinent and applicable.

Q. Food and Community Relationships

The write-up in the 1976 Oil and Gas EAR is considered still pertinent and applicable.

R. Wilderness Resource

The District has no areas with a roadless acreage of 5000 acres or more which is the criteria for a wilderness resource. There is a 28-acre roadless island in the Umpqua River, Myrtle Island, that has been designated a research natural area on which no leasing will be permitted.

REFERENCES

II. Description of the Existing Environment

D. Air and Climate

"Climatological Summary," Climatography of the United States, No. 20-35, U.S. Department of Commerce, National Oceanic and Atmospheric Administration Environmental Data Service in cooperation with Roseburg Area Chamber of Commerce.

L. Socio-Cultural Interests

1/ Ross, Alexander (1854) (1956), The Fur Hunters of the Far West, edited by K. Spaulding. University of Oklahoma Press.

2/ Douglas, David (1905) "Sketch of a Journey to the Northwestern Parts of the Continent of North America During the Years 1824-25-26-27, III," Quarterly of the Oregon Historical Society, 6(1):76-97.

3/ Schlesser, Norman (1975), "Hudson's Bay Company Fort Umpqua, 1836-1852," Northwest Anthropological Research Notes , 9(1):70-86.

4/ Walling, A.G. (1884), History of Southern Oregon, Portland.

5/ "The Manpower Resource of Douglas County," 1966 State of Oregon Department of Employment, Oregon State Employment Services.

6/ "The Character of Douglas County," Douglas County Planning Commission, September, 1968.

M. Social Welfare

"Zoning and Land Use Ordinance for Douglas County," Douglas County Planning Commission, Roseburg, Oregon, 1969.

"The Character of Douglas County," Douglas County Planning Commission, Roseburg, Oregon, September 1968.

"The Manpower Resource of Douglas County," State of Oregon, Department of Employment, Oregon State Employment Service, in cooperation with the Bureau of Employment Security, United States Department of Labor, 1966.

N. Archaeological Values

1/ Bedwell, Stephen (1973), Fort Rock Basin: Prehistory and Environment, University of Oregon Press, Eugene.

2/ Berreman, Joel (1937), "Tribal Distribution in Oregon," American Anthropological Association Memoir, No. 47.

3/ Swanton, John R. (1952), "The Indian Tribes of North America," Smithsonian Institution, Bureau of American Ethnology, Bulletin 145.

4/ Drucker, Philip (1937), "The Tolowa and Their Southwest Oregon Kin," University of California, Publications in American Archaeology and Ethnology, Vol. 36, No. 4.

5/ Goddard, Pliny (1903), "Life and Culture of the Hupa," University of California, Publications in American Archaeology and Ethnology, Vol. 1.

6/ Kroeber, Alfred (1925), "Handbook of the Indians of California," Bureau of American Ethnology, Bulletin 78.

7/ Sapir, Leslie (1907), "Notes on the Takelma Indians of Southwestern Oregon," American Anthropologist, 9:215-275.

III. Anticipated Impacts of the Proposed Action and Alternatives

The 1976 Oil and Gas Environmental Assessment covered this portion of the assessment on pages 61 through 80 in the following outline format:

A. Non-Living Components

Geology
(1) Slope Stability Hazards
(a) Slides
(b) Mud Flows
(2) Flood Hazards
(3) Erosion
(4) Subsidence
(5) Earthquakes
(6) Volcanic Hazards

Soils

Land Use

Air

Micro-climate

Water

B. Living Components

Aquatic Plants

Terrestrial Plants

Wildlife
Terrestrial
Aquatic

Domestic Livestock

C. Human Values

Socio-cultural interests
Historical/Archaeological Resources
Social Welfare
(1) Local Economic Stability
(2) Populations
(3) Community Services
(4) Life Styles and Cultures
(5) Landscape Character and Aesthetics

D. Ecological Interrelationships

E. Food and Community Relationships

F. Alternative to the Proposed Action

Since not all readers may have a copy of the 1976 EAR, the elements of the above outline have been shown to identify the components analyzed. Modification and minor additions follow. (Not all components of the outline are included.)

III. Anticipated Impacts of the Proposed Action and Alternatives

A. Non-Living Components

Land Use

Recreational uses which depend on motorized travel such as fishing, hunting, rockhounding, and off-road vehicle uses, could benefit because of improved access. Better access, however, could adversely affect some resources because of overuse and crowding. Any development highly visible from developed recreation areas would be undesirable from the standpoint of most recreationists.

C. Human Values

Socio-Cultural Interests

Historical/Archaeological Resources

Discovery of previously unrecorded archaeological sites during the exploration and development phases of petroleum operations is a possibility. Road construction, drill pad construction, etc., will remove vegetative cover from areas previously hidden from view facilitating the search for archaeological resources. Any sites discovered should be promptly brought to the attention of the Authorized Officer.

Part III, F. is repeated from the 1976 EAR.

F. Alternative to the Proposed Action

No Leasing

This action would involve an administrative decision by the BLM not to lease for oil and gas development any of the Federal lands under application for oil and gas leasing. The possible impacts of the action are as follows:

1. Off-site impacts, primarily socio-economic in nature, could be affected by the no leasing alternative. The degree of impact would be dependent upon the quantities of oil or gas to be found.

2. A no lease decision could conserve possible oil and gas resources for use by future generations; such a decision would also conserve other natural resources, including fish and wildlife, that would be unfavorably affected by oil and gas operations.

IV. Possible Mitigating or Enhancing Measures

The outline components in the 1976 Roseburg Oil and Gas EAR follow:

A. Non-Living Components

Geology

Soils

Land Use

Air

Water

B. Living Components

Aquatic Plants

Terrestrial Plants

Wildlife
Terrestrial
Aquatic

C. Human Values

Landscape Character

Socio-Cultural Interest
Historical/Archaeological Resources
Social Welfare

D. Ecological Interrelationships

Roseburg District personnel reviewed pages 81 through 91 of the above described portion of the 1976 EAR and found these pages relevant for this EAR with the following exceptions: Section A, Land Use is modified to show lease applications involving lands known to have intensive recreation use which are recommended for exclusion from leasing.

One such lease application is OR 16186 and the lands are described as NE¼SW¼ Sec. 23, T. 25 S., R. 5 W., W.M.

Section C, Human Values is modified as follows:

Socio-Cultural Interests

Historical/Archaeological Resources. Two possible alternative measures are available for the mitigation of adverse impacts on cultural resources. Restrictions on surface occupancy may be used to protect known cultural resources present on national resource land. The second mitigation measure available consists of a standard stipulation which will be included in all oil and gas leasing agreements issued by the Bureau of Land Management in the state of Oregon. The text of this stipulation is set out in the following two paragraphs.

Special stipulations made a part of leases issued recently state that, prior to any operations under this lease, the Lessee will engage a qualified archaeologist, acceptable to the Supervisor, to make a survey of the land to be disturbed or occupied. A certified statement signed by the qualified archaeologist, setting out the steps taken in the survey and the findings thereof as to the existence of antiquities or other objects of historic or scientific interest, shall be submitted to the Supervisor. If the statement indicates the existence of such materials which might be disturbed by operations under this lease, the Lessee shall take such mitigating actions as may be required by the Supervisor, including, but not limited to, archaeological salvage or protective measures or avoidance of the site, to protect and preserve such objects. The responsibility for the cost of the certificate, survey, and salvage will be borne by the Lessee, and such objects shall remain the property of the Lessor, or the surface owner if other than the Lessor.

If a cultural resource is discovered during project operations, activities will be stopped until a survey of the materials is completed by a qualified archaeologist engaged by the Lessee and acceptable to the Supervisor, including but not limited to archaeological salvage or protective measures or avoidance of the site, to protect and preserve the materials. Such materials shall remain the property of the Lessor, or the surface owner if other than the Lessor.

An additional mitigating measure is a recently executed working agreement between the BLM and U.S. Geological Survey* with respect to the protection of cultural resources related to upland (onshore) oil and gas resource operations conducted on leased Federal lands under the jurisdiction of the Department of the Interior.

*Portland, Oregon BLM State Office Instruction Memorandum No. OR-77-116 March 17, 1977.

V. Recommendations for Mitigation

The 1976 Oil and Gas Leasing EAR included the following outline components:

A. Non-Living Components

Geology

Soils

Land Use

Air

Water

B. Living Components

Aquatic Plants

Terrestrial Plants

Wildlife
Terrestrial
Aquatic

C. Human Values

Landscape Character

Socio-Cultural Interests
Historical/Archaeological Resources
Social Welfare

D. Ecological Interrelationships

Roseburg District personnel reviewed pages 92 through 102 of the 1976 Oil and Gas Leasing EAR, Part V as described above. The assessment in that EAR is pertinent and applicable to this assessment with the following exceptions:

C. Human Values

Landscape Character

There are four areas which require mitigating measures as recommended in the Drain and North Umpqua Area Management Framework Plans. These areas are too small to show on the visual resources map. A brief description, with recommended mitigating measures follows.

1. Gunter Recreation Site, Sec. 1, T. 21 S., R. 6 W.

This is a BLM camping and picnic area on Smith River Road. No activity should be permitted within the park or within a zone one-quarter mile around it.

2. Smith River Scenic Corridor

The strip of land between Smith River and the Smith River Road has been designated as a scenic corridor. No activity, other than survey work, should be permitted in this area.

3. Cooper Creek Reservoir

Two BLM parcels are highly visible from this heavily-used recreation area. The NE¼SW¼ Sec. 23, T. 25 S., R. 5 W., is adjacent to this recreation area and is also used for forestry education by Umpqua Community College. It should be excluded from leasing. About 30 acres in the east portion of the N½NW¼ Sec. 27, T. 25 S., R. 5 W., are also highly visible from the lake and recreation area. No activity, other than survey work, should be permitted in this area.

4. Tyee Mountain

For portions of lease #17145 (Tyee Mountain) it was recommended BLM restrict additional road construction in the following locations:

NE¼, SE¼NW¼, SW¼ Sec. 13, T. 25 S., R. 7 W.
SE¼SE¼, Sec. 14, T. 25 S., R. 7 W.
E½NE¼, NE¼SW¼, NW¼SE¼, Sec. 23, T. 25 S., R. 7 W.

The intent of these restrictions is to minimize conspicuous intrusions within the areas generally visible from the vicinity of Umpqua and county roads #6 and #9. Severity of restrictions should be dependent upon on-site analysis of visual impact, and will range from no disturbance to carefully planned and located inconspicuous routes. Route location planning should be closely coordinated with timber access routes needed for future development.

Summary of Standard Mitigating Measures (from 1976 EAR pp. 101-102)

The Federal leasing procedures and State regulations on oil and gas operations mentioned in Section I refer to regulations and standard notice forms and stipulations which would apply to all geophysical explorations for oil and gas and/or activities of oil and gas lessees on national resource lands in Oregon. The notice forms, stipulations, and regulations are summarized below.

"Notice of Intent to Conduct Oil and Gas Exploration Operations," BLM Form 3040-1. Geophysical exploration companies are required to complete this form before conducting geophysical operations on national resource lands. The form contains terms and conditions under which the operations must be conducted. More detailed conditions may be established to meet the unique requirements of the area where operations will be conducted.

Section 2, Paragraph (q) of the Federal Oil and Gas Lease Form, BLM Form 3120-7. "Protection of Surface, Natural Resources, and Improvements."

BLM Form 3109-5, "Surface Disturbance Stipulations." These are the "open-ended" stipulations. They are made a part of each oil and gas lease issued by BLM at the present time. These stipulations insure that, after the lease is issued but before drilling operations are started, USGS and BLM have additional opportunities to establish conditions which the lessee will have to meet.

"Cultural Resource Stipulations to Oil and Gas Leases." This is the cultural resource protection stipulation included in all oil and gas leases issued in Oregon at the present time.

30 CFR 221. These are the Geological Survey's Oil and Gas Operating Regulations. Among other things, they include requirements relating to well casing, well abandonment, and other mitigative measures.

Geological Survey Notices to Lessees and Operators of Federal Oil and Gas Leases. Notices to lessees and operators (NTL's) transmit the Geological Survey's operating requirements to lessees.

1. Proposed NTL-2B prescribes requirements for handling, storing, and disposal of water produced from oil and gas wells.

2. NTL-3 requires lessees to report discharges of pollutants and accidents and prescribes the contents of the reports.

3. NTL-4 requires lessees to pay royalties on oil and gas lost because of blowouts, fires, or other reasons.

4. NTL-6 formalizes the requirement by the Geological Survey that an oil and gas operator furnish a surface use and operating plan to the Survey and BLM and receive approval before entering the lease to conduct drilling operations. USGS and BLM use information in the surface use plan and other data collected by the agencies to develop environmental protection measures. The measures are included as conditions of the drilling permit issued by USGS.

40 CFR 112. These U.S. Environmental Protection Agency regulations identify procedures, methods, and equipment to be used to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into navigable waters. The regulations apply to owners and operators of facilities engaged in oil and gas drilling, producing, gathering, storing, and other non-transportation-related activities. Oil and gas operators are required in the regulations to prepare Spill Prevention Control and Countermeasure Plans.

40 CFR 1510. These Environmental Protection Agency regulations contain the National Oil and Hazardous Substances Pollution Contingency Plan. As stated in the regulations, the plan:

> Provides for a pattern of coordinated and integrated response by Departments and Agencies of the Federal Government to protect the environment from the damaging effects of pollution discharges. It promotes the coordination and direction of Federal and State response systems and encourages the development of local government and private capabilities to handle such discharges.

In addition to these Federal regulations, stipulations, and administrative procedures relating to Federal lands, an oil and gas operation in Oregon would be subject to State laws and regulations regarding pollution control. The following State regulations and stipulations are applicable.

1. Chapter 632 of the Oregon Administrative Rules. These are the Department of Geology and Mineral Industries regulations on oil and gas operations.

2. "Special Conditions to Apply to All Deep Well Exploratory Drilling in Oregon." The Departments of Environmental Quality and Geology and Mineral Industries agreed in September, 1975, that these stipulations would be part of future drilling permits issued by Geology and Mineral Industries.

VI. Residual Impacts

Pages 103 through 108 in the 1976 Oil and Gas Leasing EAR discussed this. The residual impacts identified are still applicable with the following additions:

The oil and gas operating regulations, lease provisions, land use planning, permit reviews and other rules and regulations are designed to assure that oil and gas operations are conducted in an environmentally acceptable manner. In those instances where this cannot be done, development and use will not be permitted. Where the benefits of a proposed action outweigh acceptance of minor adverse impacts, such uses are acceptable provided the impacts have been identified and mitigated as much as possible. Adverse impacts that are unavoidable should the lease be issued and operations go to completion include the following.

1. The impact on the local communities. Even with land use planning and local community involvement, communities would be affected if the development phase were reached. A possible burden could be placed on community services to provide housing, schools, water and sewage facilities and health services depending on the size of the field and the rate of development. If the local economy did not diversify before the oil and gas field is abandoned, the impact would be even greater. However, the local communities would also derive some benefits from oil and gas development like new schools, roads and hospital facilities.

2. Changing the character of the land from its present use to industrial use. Some of the visual impacts can be lessened by burying pipelines, painting structures a more harmonious color, etc. Nonetheless, man's activities will lessen the area's aesthetic values.

3. Like any construction activity, some noise, dust and engine exhausts cannot be avoided. Because of the noise and intrusion of activity, some wildlife will be displaced. Recreational activities will also be displaced because of the potential safety hazards.

Most of these residual impacts are temporary; they will last only as long as the oil and gas field is producing. Once the field is abandoned and the area is restored to its original character as much as possible, the impacts will be eliminated. The only impact that cannot be eliminated once the operations have ceased is the impact on the county and local communities. The changes brought about by oil and gas development on the local communities will be permanent.

VII. Relationship Between Short-Term and Long-Term Productivity

This section focuses on the relationship between short-term use of the environment for oil and gas operations and the long-term productivity of the environment and its maintenance for other uses.

"Short-term" use refers to the period during which oil and gas operations would take place. It would extend from exploration through abandonment and completion of reclamation. The "short-term" may vary from a period of several months if preliminary investigations or wildcat drilling were unsuccessful to up to 50 years if commercial amounts of oil and gas were discovered.

"Long-term" is considered to be the period of time beyond the point when all possible restoration has been completed.

This item in the 1976 assessment was discussed on pages 109 through 112 and is not repeated.

VIII. Irreversible and Irretrievable Commitment of Resources

This was discussed on pages 113 and 114 in the 1976 EAR and is still relevant for the lands applied for and the subject of this EAR.

IX. Intensity of Public Interest

The District's request for input to the Oil and Gas Environmental Assessment coupled with the reaction to the publicity such as announcements on the radio, T.V. and newspapers has generated only a small amount of interest. Judging by the letters, telephone calls, and visits to the BLM office by interested people, most of the reaction has been favorable to permitting leasing, provided safeguards are taken in areas of conflict and sensitive areas such as watersheds, high-use recreation areas, protection of visual aesthetic important locations and high cost investments, such as timber access roads.

Correspondence on this subject, while not made a part of the EAR, is available for public inspection in the Roseburg BLM Office.

X. Persons, Groups, and Governmental Agencies Consulted or Contacted

In the later part of February, 1977, a publicity release was made to the media. It resulted in radio, T.V. and newspaper coverage. Copies of newspaper clippings are attached.

During the week of March 7-11, 1977 a letter was sent to 100 parties. Responses were received from some of our correspondents on this subject, and a copy of the letter with enclosures and list of such correspondence follows. The file is available for public review at the Roseburg District Office.

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

PUBLICITY RECORD

Newspaper and Location THE SUN-TRIBUNE, SUTHERLIN, OREGON

Date of Publication 24 FEBRUARY 1977

Submitting Office ROSEBURG DISTRICT OFFICE

BLM Requests Public Comment On Sutherlin Area Oil-Gas Lease Sites

Public comments about the environmental impacts of proposed oil and gas lease sites near Sutherlin and Drain are invited by the Bureau of Land Management, according to James E. Hart, Roseburg District Manager.

Hart noted that 12 oil and gas lease applications covering 11,481 acres of BLM land are the subject of an environmental assessment currently being prepared by the district staff.

The lands involved are a few miles north and south of Drain and east and west of Sutherlin. The 12 lease applications include lands that are near or adjoin previous oil and gas lease areas.

"We will appreciate receiving factual information concerning the net impact on the environment which likely would result if oil and gas leases were issued, exploration conducted and production undertaken," Hart said.

He added that comments would be most useful if received before the end of March, 1977, as BLM's assessment proceeds. Comments should be made in writing to the BLM's district office, 777 N. W. Garden Valley Blvd., Roseburg, 97470.

An additional 35 oil and gas leases covering 59,141 acres of BLM land in the Roseburg district were issued in January to Mobil Oil Corp., Los Angeles. The land under these leases include scattered tracts lying in a north-south trending area from the vicinity of the Smith River, north of Elkton southward to Camas Valley. All of these leased lands are national resource lands managed by BLM, and all but three of the 35 leases include lands entirely within Douglas County.

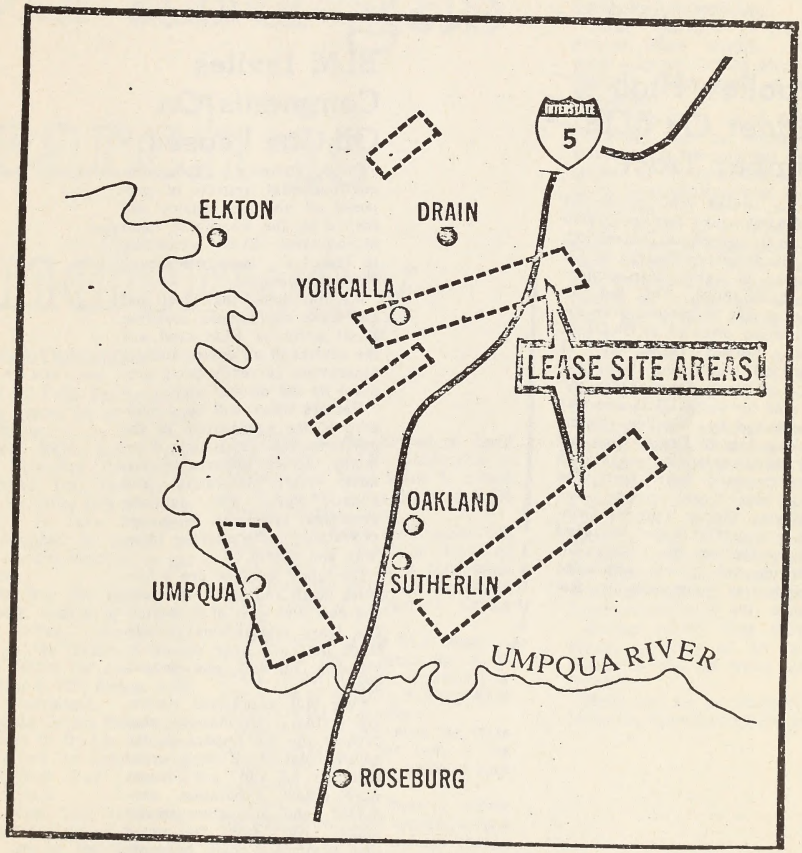
UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

PUBLICITY RECORD

Newspaper and Location THE SUN-TRIBUNE, SUTHERLIN, OREGON

Date of Publication 24 FEBRUARY 1977

Submitting Office ROSEBURG DISTRICT OFFICE



UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

PUBLICITY RECORD

Newspaper and Location THE DRAIN ENTERPRISE, DRAIN, OREGON Date of Publication 24 MARCH 1977

Submitting Office ROSEBURG DISTRICT OFFICE, ROSEBURG, OREGON

Woolley High Bidder On BLM Timber Tract

Four timber sales containing 18,910,000 board feet were sold at oral auction on March 22, by the Roseburg District of the Bureau of Land Management for $3,255,181.20. The bid increase was 20 percent over the appraised price of $2,720,631.65.

The Forked Horn sale of 6,968,000 board feet was only sale in North Douglas County. It sold for $1,226,171.25 and was purchased by Woolley Enterprises, Inc. of Drain. High bid on the Douglas-fir was $182.25 per thousand board feet. The only other oral bidder was Douglas County Lumber Company with $182.00 per thousand board feet on the Douglas-fir. Written bid of the appraised value was submitted by Sun Studs, Inc.

BLM Invites Comments On Oil-Gas Leases

Public comments about the environmental impacts of proposed oil and gas leasing are invited by the Bureau of Land Management (BLM), according to James E. Hart, Roseburg District Manager.

Mr. Hart noted that 12 oil and gas lease applications covering 11,481 acres of BLM land are the subject of an environmental assessment currently being prepared by the district staff.

Factors which will be considered in the preparation of the environmental assessment documents include impacts on air, land, water, terrestrial and aquatic plants and animals, ecological processes, landscape character, sociocultural interests and others.

The lands involved are a few miles north and south of Drain and east and west of Sutherlin. The lease applications include lands that are near or adjoin previous oil and gas leased areas.

"We will appreciate receiving factual information concerning the net impact on the environment which likely would result if oil and gas leases were issued, exporation conducted, and production undertaken," Hart said. He added that comments could be most useful if received before the end of March 1977, as BLM's assessment proceeds.

Thirty-five oil and gas leases covering 59,141 acres of BLM land in the Roseburg District were issued Jan. 1977.

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

PUBLICITY RECORD

Newspaper and Location THE NEWS-REVIEW, ROSEBURG, OREGON

Date of Publication 08 APRIL 1977

Submitting Office ROSEBURG, OREGON DISTRICT OFFICE

Oil and gas search is underway

By DAVID TISHENDORF
N-R Staff Writer

The Mobil Oil Corp. has begun an earthshaking search for oil and gas in Douglas County.

Crews from Mobil and a subcontractor, Petty-Ray Geophysical Inc. of Houston, Tex., have moved into the Garden Valley area northwest of Roseburg to take "seismic readings" designed to locate the most likely areas in which oil or gas might be found.

If the data from the readings is judged reliable, drilling in Oregon's Willamette Valley, although not necessarily in the Roseburg area, could begin before the end of the year, according to Phil Bishop, head of Mobil's field operations.

Bishop said the Garden Valley crew is Mobil's first in Oregon. Another crew is expected to begin taking seismic recordings May 1 in the Albany area, he said.

Jim Guy, Mobil land supervisor, said Mobil has gas and oil leases in the general area of the Willamette Valley covering 600,000 acres of private land and 250,000 acres of state and federally-owned land.

He said the land is in Douglas, Lane, Linn, Marion, Polk and Benton Counties. Guy added that the corporation does not have its lease holdings broken down by county.

Mobil is the only oil corporation looking for gas and oil in the Willamette Valley. Standard Oil Co. and Texaco Inc., however, have extensive land holdings in Eastern Oregon.

Officials of the Bureau of Land Management (BLM) announced in January that Mobil would be issued 32 oil and gas leases covering 58,000 acres in Douglas County.

The leases would allow exploration exclusively by Mobil on scattered BLM tracts lying in a north-south area from the vicinity of the Smith River north of Elkton to Camas Valley.

Under terms of the BLM leases — which run for a minimum of 10 years, longer if Mobil strikes oil or gas — the oil company will pay BLM 50 cents an acres annually.

Should oil be discovered, the lease fee becomes 12.5 per cent of the value of the oil at the wellhead once production begins.

Bishop said Mobil chose to explore the Willamette Valley because it "is a basin which we feel is large enough for an oil accumulation."

He said Mobil geologists and surveyors have been doing preliminary surface work for the past three years in Oregon and that nothing they have discovered thus far has discouraged the corporation from continuing its exploration.

Three "vibrators" — trucks with devices which literally shake the earth — were working along County Highway 6 just south of Umpqua Wednesday.

The vibrators, which belong to Petty-Ray, send out physical shock waves which are reflected below the surface of the earth and are picked up by strategically placed phones on the surface.

The result is a seismic graph which shows the subsurface rock and earth formations. Bishop said certain formations are more likely to contain oil or gas than others, and that the graphs should pinpoint them.

"But we've taken no seismic recordings in this area yet and we don't know if we can get reliable data here," he said.

Bishop said the data collected at Garden Valley will be sent to Dallas, Tex., for analysis and interpretation.

He said the 23-man Mobil and Petty-Ray crew will move to an area about eight miles northeast of Sutherlin after it has finished the readings in Garden Valley. Most of the Garden Valley land on which Mobil is exploring is being leased from private owners.

Bishop added that there are enough readings to be taken in Oregon to keep his crews busy until October.

Mobil has set up headquarters in Sutherlin, where the crew also lives.

IN REPLY REFER TO

United States Department of the Interior

3110

BUREAU OF LAND MANAGEMENT
District Office
777 N.W. Garden Valley Blvd.
Roseburg, Oregon 97470

MAR 10 1977

Dear

The Roseburg District Office of the Bureau of Land Management is in the process of preparing an environmental assessment concerning the effect of oil and gas leasing and possible development on the approximate area of the enclosed map. There are 13 oil and gas lease applications covering 11,767 acres that will be the object of the environmental assessment.

Factors which will be considered in the preparation of the environmental assessment document include impacts on air, land, water, terrestrial and aquatic plants and animals, ecological processes, landscape character, sociocultural interests and others.

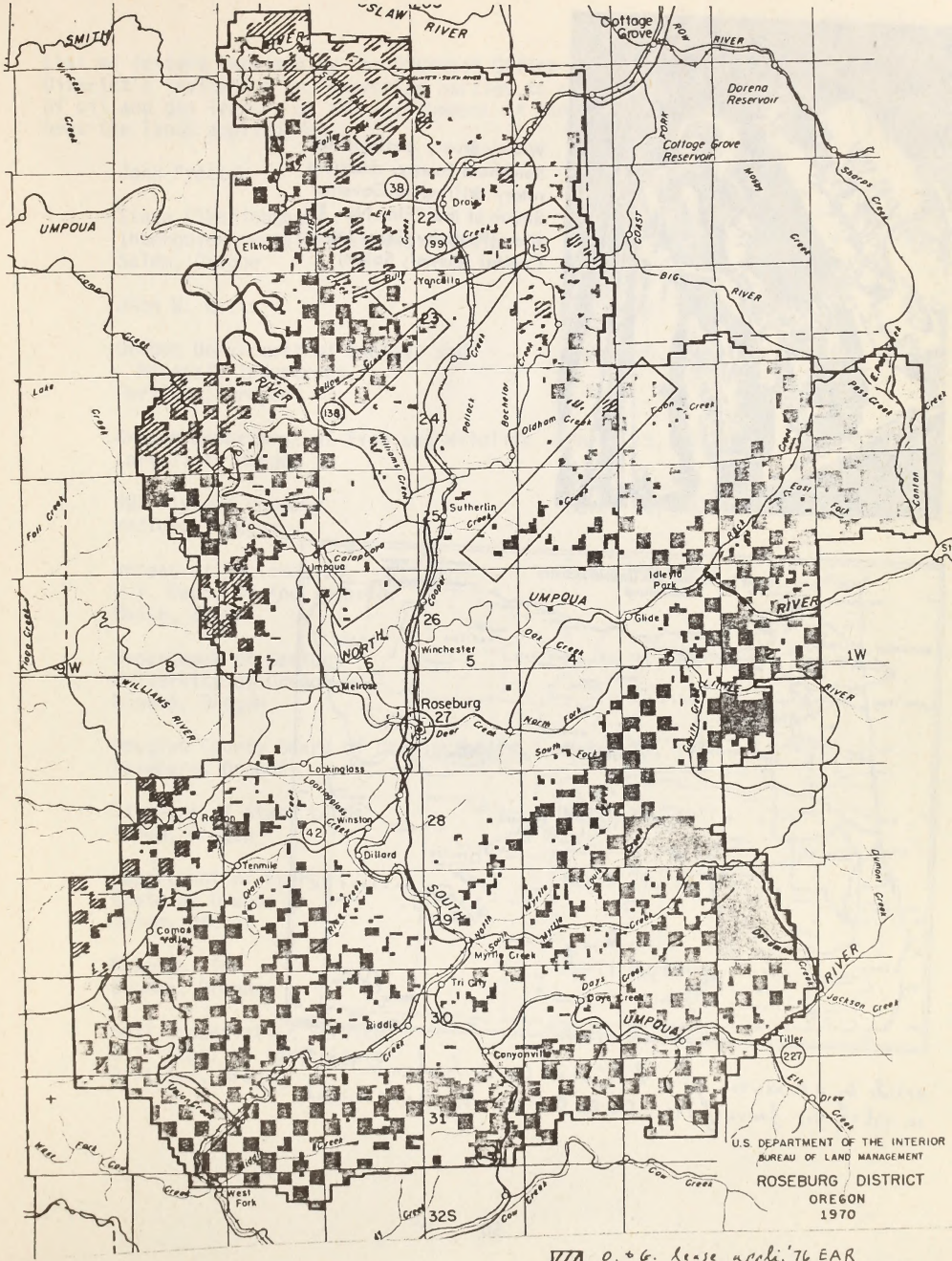
If you have any comments on the effect of oil and gas leasing on the environment of this area, we would appreciate receiving your comments by April 10, 1977.

If this letter generates sufficient interest and comment to justify a public meeting, one will be held. Your comments are welcomed.

Sincerely yours,

James E. Hart
District Manager

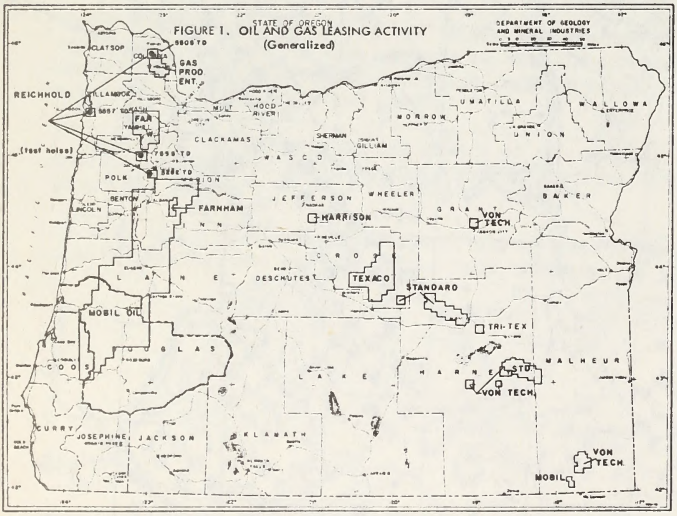
Enclosure
Small Scale Map



0.&G. lease appli. '76 EAR

0.&G. lease appli '77 EAR

Wesley Bruer, geologist for Reichhold Energy, describes rotary drilling to Governor Straub at the "Finn No. 1" site. (Photo by Gerry Lewin, Capital Journal, Salem)



Article by V.C. Newton, Jr. - p. 7 "Oil and Gas Exploration in 1975" in Vol 38, No 1 January 1976, The Ore Bin. Ore Dept of Geol & Min Ind.

List of letters received by the District Office in response to the District's invitation to interested parties to comment on the effect of oil and gas leasing on the environment of the areas embraced or near the lands applied for.

John Proctor	February 25, 1977
State Clearinghouse, Intergovernmental Relations Division Salem, Oregon	March 16, 1977
John W. Batts	March 14, 1977
Oregon Department of Geology and Minerals Industries Portland, Oregon	March 15, 1977
Oregon Department of Fish and Wildlife Corvallis, Oregon	March 15, 1977
SWF Plywood Company Medford, Oregon	March 16, 1977
Bureau of Reclamation U.S. Dept. of the Interior Boise, Idaho	March 17, 1977
Department of Geology University of Oregon Eugene, Oregon	March 31, 1977
Douglas County Board of Commissioners Roseburg, Oregon	March 22, 1977
Division of State Lands Salem, Oregon	March 24, 1977
Department of Energy State of Oregon Salem, Oregon	March 29, 1977
Bohemia, Inc. Eugene, Oregon	April 5, 1977
Soil Conservation Service U.S. Dept. of Agriculture Portland, Oregon	April 8, 1977

Bonneville Power Administration Portland, Oregon	April 8, 1977
Fish and Wildlife Service U.S. Dept. of the Interior Portland, Oregon	April 11, 1977

XI. Participating Staff

This environmental assessment was prepared during Feburary through April, 1977, in the Roseburg District, Bureau of Land Management by the following, who contributed their expertise or edited the document.

Joseph Rudys	Mining Engineer
Don Kobelin	Area Manager, North Umpqua Resource Area
Glenn Kline	Forester, North Umpqua Resource Area
Robert Bright	Area Manager, Drain Resource Area
Vic Olson	Assistant Manager, Drain Resource Area
George Nishimoto	Chief, Division of Resources
Frank Oliver	Fishery Biologist
Lyman Brigham	Realty Specialist
Robert Alverts	Planning & Environmental Coordinator
Steve Wert	Soil Scientist
Richard Hanes	Archaeologist

XII. Summary Conclusion

As a result of the proposed action, three major impacts could occur:

1. Alteration of the existing environment
2. Contribution of energy resources to meet the nation's energy needs.
3. Temporary or short-term impacts on the social welfare of the communities within the influence of the analysis area.

The degree of impact will be dependent upon the discovery of economic oil and/or gas producing fields.

Alteration of the existing environment to some degree will take place despite the success or failure of exploration activities.

Summarily, the environment may be considered a composite of the ambiotic environment and the biotic community. Primary components include soil, water, vegetation, and wildlife. Residual impacts on these components could occur despite close adherence to recommendations for mitigation. These are as follows:

1. Soils
   - Erosion of a short-term nature would take place until revegetation and reclamation actions were completed.
   - Some loss of topsoil will occur.
   - Some compaction of soils on sites of intensive use will occur and remain, despite attempts to rip these areas. Complete soil reclamation will only be achieved by the successful revegetation of such areas.
2. Water
   - Some sedimentation will occur, but it will be of a short-term nature.
   - Reduction in water qualities available when sources are used for oil and gas operations. This would be a short-term impact in most cases. However, depletion of groundwater aquifers could result in a permanent loss of the resource.

3. Vegetation

- Removal of timber to facilitate oil and gas operations will require considerable time to replace.

- Some change in understory composition will be inevitable due to invasion by new species.

- Some areas will remain denuded due to loss of topsoil and proximity of bedrock to the surface.

4. Wildlife

- Habitat destruction on a localized scale will occur. In most cases this should be of a short-term nature.

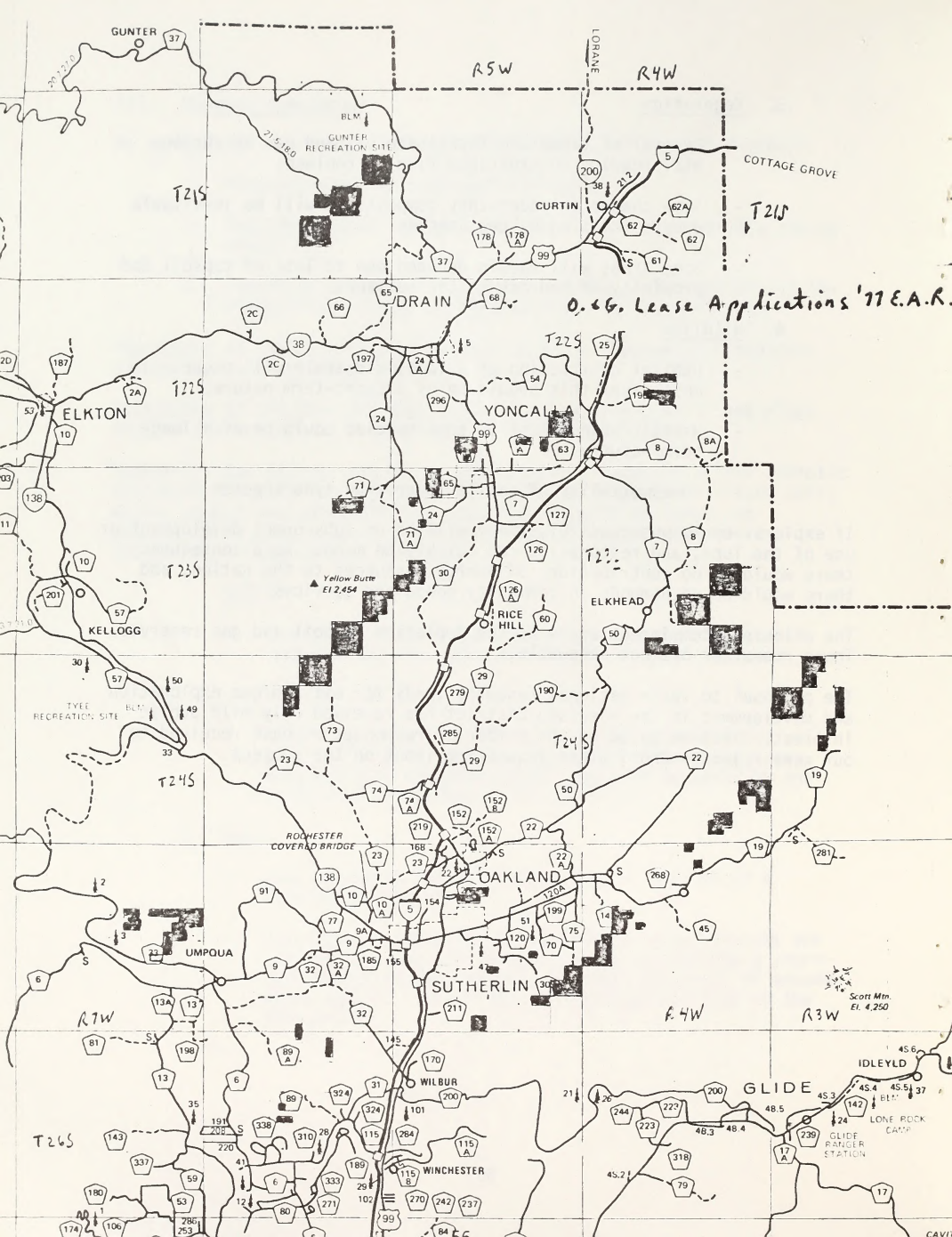
- Habitat abandonment by some species could be of a long-term nature.

- Some mortality of smaller burrowing type species.

If exploration is unsuccessful, there will be no subsequent development or use of the land, and restoration can quickly be made. As a consequence, there would be no contributions of energy resources to the nation, and there would be no demands on community goods and services.

The principle commitment would be the depletion of soil and gas reserves. These resources are not renewable.

The proposal to lease national resource lands for oil and gas exploration and development in the Roseburg District has received only mild public interest. This is based on the number of responses we have received to our news releases and letters requesting input on the subject.


GUNTER
R5W
R4W
LORANE
BLM
GUNTER RECREATION SITE
COTTAGE GROVE
CURTIN
T21S
DRAIN
O.&G. Lease Applications '77 E.A.R.
T22S
ELKTON
YONCALLA
Yellow Butte
El 2,454
RICE HILL
ELKHEAD
KELLOGG
T23S
TYEE RECREATION SITE
T24S
ROCHESTER COVERED BRIDGE
OAKLAND
UMPQUA
SUTHERLIN
Scott Mtn.
El. 4,250
R7W
R6W
R3W
IDLEYLD
GLIDE
LONE ROCK CAMP
GLIDE RANGER STATION
WILBUR
WINCHESTER
T26S

Lands Applied for Oil and Gas Leasing and Subject of this EAR 1977

OR 17132 T. 21 S., R. 6 W., W.M., Oregon
Sec. 13: All; 640 acres
Sec. 22: S½NE¼, N½SE¼; 160 acres
Sec. 23: All; 640 acres
Sec. 27: All. 640 acres
Total: 2080.00 acres

OR 17136 T. 22 S., R. 4 W., W.M., Oregon
Sec. 21: SE¼, N½SW¼, N½N½.
Total: 400.00 acres

OR 17137 T. 22 S., R. 5 W., W.M., Oregon
Sec. 25: SW¼, S½NW¼, SW¼NE¼, W½SE¼; 360 acres
Sec. 33: NW¼, W½NE¼, NE¼SW¼; 280 acres
Sec. 35: Lot 1, N½NW¼, E½NE¼. 180.36 acres
Total: 820.36 acres

OR 17130 T. 23 S., R. 5 W., W.M., Oregon
Sec. 5: NW¼, N½SW¼, SE¼SW¼; 276.32 acres
Sec. 7: NW¼NE¼, SE¼SE¼; 80 acres
Sec. 19: W½, NE¼, N½SE¼. 546.70 acres
Total: 903.02 acres

OR 17135 T. 23 S., R. 6 W., W.M., Oregon
Sec. 11: N½; 346.76 acres
Sec. 25: W½, N½NE¼, SW¼NE¼, NW¼SE¼; 448.18 acres
Sec. 35: All. 578.16 acres
Total: 1373.10 acres

OR 16185 T. 24 S., R. 3 W., W.M., Oregon
Sec. 5: Lots 5, 6, 7, 8, 9, 10, 11, 12, 13, 14; 396.03 acres
Sec. 7: All; 596.43 acres
Sec. 9: W½W½; 160.00 acres
Sec. 17: Lots 1, 2, 3, 4. 153.90 acres
Total: 1306.36 acres

OR 17146 T. 24 S., R. 4 W., W.M., Oregon
Sec. 25: N½, SE¼, NW¼SW¼; 520 acres
Sec. 35: N½SW¼, S½NW¼, NE¼NW¼, W½NE¼. 280 acres

T. 25 S., R. 4 W., W.M., Oregon
Sec. 3: NW¼SE¼, NE¼NW¼; 81.57 acres
Sec. 17: Lots 3, 5, SW¼, SE¼NW¼, W½NW¼. 329.34 acres
Total: 1210.91 acres

OR 17133 T. 24 S., R. 6 W., W.M., Oregon
Sec. 3: Lots 1, 2, 3, 4, S½N½, S½; 640.80 acres
Sec. 9: NE¼, N½SE¼, SW¼SE¼. 280 acres
Total: 920.80 acres

OR 17148 T. 25 S., R. 4 W., W.M., Oregon
Sec. 19: Lot 4, SW¼NE¼, E½NE¼, SE¼, SE¼SW¼. 359.79 acres

T. 25 S., R. 5 W., W.M., Oregon
Sec. 25: E½, SW¼; 480 acres
Sec. 33: SE¼; (private land-no minerals, reserved to U.S.)
Sec. 35: N½NE¼. 80 acres
Total: 919.79 acres

OR 16186 T. 25 S., R. 5 W., W.M., Oregon
Sec. 23: NE¼SE¼; 40 acres
Sec. 27: N½NW¼. 80 acres
Total: 120.00 acres

OR 17145 T. 25 S., R. 7 W., W.M., Oregon
Sec. 13: NE¼, E½NW¼, NW¼NW¼, SW¼; 440 acres
Sec. 14: N½NE¼, NE¼NW¼, SE¼SE¼; 160 acres
Sec. 15: N½NE¼, SE¼NE¼, N½SE¼; 200 acres
Sec. 23: E½NE¼, NW¼SE¼, NE¼SW¼. 160 acres
Total: 960.00 acres

OR 17147 T. 25 S., R. 6 W., W.M., Oregon
Sec. 33: SE¼SE¼. 40 acres

T. 26 S., R. 6 W., W.M., Oregon
Sec. 3: SE¼NE¼, NE¼SE¼; 80 acres
Sec. 4: NE¼NE¼; (private land-O&G reserved to U.S.)
39.89 acres
Sec. 17: Lot 2, SE¼NW¼, SE¼SW¼, SW¼SE¼. 125.86 acres
Total: 285.75 acres

OR 17309 T. 23 S., R. 4 W., W.M., Oregon
Sec. 23: All; 640 acres
Sec. 27: All; 640 acres
Sec. 33: SW¼, S½SE¼; 240 acres
Sec. 35: NW¼, E½NE¼, NE¼SE¼, Lots 1, 2, 3, 4, 5, 6, 7, 8, 9. 647.75 acres
Total: 2167.75 acres

Grand Total: 13,467.84 acres

Borrower's C

ROSE
.38
EAR

Rosebury District st
assessment recor
gas leasing.

Date Loaned	Borrower